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TUESDAY, JUNE 14TH, 1864.

DR. JAMES HUNT, PRESIDENT, IN THE CHAIR.

THE minutes of the previous meeting were read and confirmed.

The names of the Fellows elected since the last meeting were read as under—Sir John Benn Walsh, Bart., M.P.; John Ashbury, Esq.; William Smith, Esq.; Charles Tuckett, jun., Esq.; H. Driver, Esq.; F. Fearon, Esq.; S. Smith Travers, Esq.; O. F. Waterfield, Esq.; John Mortimer, Esq.; The Rev. S. Beal, Chaplain Royal Maine Artillery; Edward Peacock, Esq., F.S.A.; A. Norman Tate, Esq., F.C.S.; J. B. Mirrlees, Esq.

Local Secretaries—Richard Lee, Esq., F.A.S.L., Bradford; George T. Hine, Esq., Brisbane, Queensland; Charles Linder, Esq., Labrador; Commander Bedford Pim, R.N., Nicaragua.

MR. HIGGINS also announced the deaths of Professor Waitz, and of Professor Rudolph Wagner, who were Hon. Fellows of the Society.

THE PRESIDENT stated that the Council had that day unanimously elected Mr. Charles Carter Blake, F.G.S., as Curator, Librarian, and Assistant-Secretary of the Society.

MR. HIGGINS then read the following communication from Dr. Paul Broca, who had contributed to the Society's museum six casts of the skulls referred to in his paper.

*To the President of the Anthropological Society of London.*

Paris, May 20th, 1864.

MR. PRESIDENT,—I beg you will be so good as to offer in my name to the Society over which you preside six plaster casts, representing, 1. Three Basque crania obtained from the cemetery of Z— (Guipuscoa). 2. Three crania from the grave in the cavern of Orrouy (Bronze age). I hope that the Anthropological Society of London will be good enough to accept this present as some evidence of my gratitude for the favours which it has heaped upon me. I feel called upon to add some information respecting these crania. Their history will be found in the *Bulletins* of the Paris Anthropological Society; viz., that of the Basque crania, vol. iii, p. 503 to 579, and vol. iv, p. 33 to 72; and that of the crania from Orrouy, vol. iv, p. 510, 512, and vol. v, p. 56.

The three specimens which I have chosen from the sixty Basque crania which I have deposited in our museum, represent the two cranial types of the Basques of the village of Z—. No. 24 is the most brachycephalic of the series; this form is entirely exceptional; of the sixty crania, the cephalic index of which is between 80 and 81 per cent., five of which the index is between 81 and 82 per cent., one between 82 and 83 per cent., and lastly one the index

of which amounts to 83; it is the latter which bears the number 24, and of which I send you a cast. In order to comprehend the bearing of this fact, it will suffice to remember that amongst the three hundred and eighty-four Parisian skulls in our museum, there are eighty-two of which the index is comprised between 80 and 83, and seventy-four between 83 and 92. If we make use of the division which I established three years ago (*Bulletins*, vol. ii, p. 507), we perceive that there is not one truly brachycephalous skull amongst the sixty derived from Z—, the truly brachycephali being those of which the index exceeds 85. The twelve skulls of which the index is comprised between 80 and 83 are merely sub-brachycephali, if we employ the division which I originated and published more than a year before we possessed Basque skulls. Amongst the sixty skulls from Z—, there are only two which sufficiently approach to the brachycephalous form to be considered as brachycephali.

The two other Basque skulls which I send you are Nos. 21 and 39, representing the dolichocephalous type, which considerably predominates in the population of Z—. These are not the most dolichocephalic of the series; their index is about 74, and there are some of which the index is so low as 71. But I have chosen these two skulls, because they represented the most common type. Amongst our sixty crania, there are at least thirty which resemble them considerably.

If I may be allowed to express a wish, I should ask you to indicate on the labels of these Basque skulls that No. 24 presents a brachycephalic form entirely exceptional amongst the inhabitants of Z—. Those who visit your museum should on no account be led to believe that the population of Z— comprises one brachycephale in every three individuals, whereas in reality the proportion is that of one to thirty.

I have not been able to select as I could have wished the specimens of skulls from the sepulchral cave of Orrouy (Bronze age). Many of these skulls, which I should have chosen in preference, are sufficiently complete to be measured, but not sufficiently so to be cast from. Those which could be more or less measured number sixteen, and there are five others which are too incomplete to be exactly measured. Amongst these twenty-six skulls, there are three true dolichocephali, of which the index is confined between 71 and 75; two subdolichocephali, between 75 and 77·7; four mesaticephali, between 77·7 and 80; five subbrachycephali, between 80 and 85; and finally, two true brachycephali, of which the index is 85 or beyond.

No. 4, which I send you, is mesaticephalic, 79·7; No. 8 is subbrachycephalic, 81·5; finally, No. 11 is brachycephalic, 85·3 per cent.

The dolichocephalic crania have not been cast, and the same is the case with the most brachycephalic skull of the series, of which the index is so much as 87.

I shall call your attention to No. 8, which presents the most common form in the Orrouy sepulchre. This skull, unfortunately deprived of the facial bones, is remarkable for the smallness of the forehead, for the enormous development of the parietal regions, and above all for

the considerable flattening which exists on each side on the level of the temporo-parietal suture. When this singular form is examined, the first idea which arises in the mind is, that it was due to pathological causes; but it is reproduced in eight of the Orrouy skulls; there is even one skull in which it is more distinguishable than it is in No. 8. This lateral flattening does not appear to me to be due to artificial deformation, as it coincides with a number of characters, and especially with the narrowness of the forehead, which evidently appears not to have been caused by a pressure exercised on the posterior portions of the head. I do not venture, however, to allege that it is a race character, but if it is not a race character, it is certainly one peculiar to a family, and transmitted hereditarily during some generations. What leads me to incline towards this hypothesis, is that, in the Orrouy grave, there were to be found a large number of humeri pierced through at the fossa of the olecranon. Unfortunately, the complete humeri alone have been preserved; they number thirty-two, and eight of these are naturally pierced with a large foramen. This perforation is very rare in the existing or past races of Europe. I have only found it five times amongst more than a thousand humeri, which I have extracted, with the assistance of M. de Roucy, from the large Merovingian sepulture of Chelles (Oise). Mr. Barnard Davis writes to me that he has not observed it in any humerus from the stone or bronze periods which he has examined at my request in one of the richest collections in England. It only exists in two of the humeri of the stone age, which I have extracted from the long barrow of Chamant (Oise), and which number about fifty; I, however, entertain doubts as to one of these humeri, in which the hole is not perfectly regular. The proportion of eight perforated humeri amongst the thirty-two from Orrouy is consequently most extraordinary; but, up to the present time, nothing sanctions the supposition that this is a character of one of the ancient races of Gaul; it is exceedingly probable that it was a character or perhaps an abnormality which had become hereditary in a family, or in a small tribe, similar to the premature bifurcation of the humeral artery in a little German village, referred to by Tiedemann. And if this is the case, the supposition is not unwarrantable that this singular form, which is so frequent amongst the Orrouy skulls, is also a family character.

I have written with a pen on each of the six skulls their internal capacity, expressed in cubic centimetres. The other measures can be taken on the plaster moulds; and I shall here offer to you a general remark on this subject.

The plaster casts swell in volume as they harden, and this is the reason why moulders are accustomed to bind round their matrix with many twists of firm rope. It is probable that if they wait some days before they withdraw the mould from the matrix dilatation will not be produced. But, to gain time, they remove the mould before it is sufficiently solid to resist, and dilatation consequently takes place, as it is not obviated by the application of external pressure. It results that, in all the casts which I was able to compare with the originals, the principal diameters are augmented about two millimètres; the

horizontal circumference is augmented to six, or even to eight or ten millimètres, and the others in proportion. That which is most inconvenient is the fact that the amplitude of this dilatation is not uniform. It varies according to the more or less fineness of the plaster, according to its degree of purity, according as to whether it is soaked to a greater or less extent in water; secondly, according to whether the mould is hollow or empty, and whether the bed of plaster is more or less thick. This cause of error, which is already very considerable, is further aggravated when we recast from the first mould in such a manner, that if we take many successive castings, as are made when exchanges take place from one museum to another, the volume and even the form of the skulls can be considerably modified; I say the form, because it is improbable that dilatation could be absolutely regular in every sense.

I have thought it right to add to the casts which I send you a table of the principal measures taken on the actual skull. I propose to take this step every time I shall have to send casts either to you or to other museums. And I shall take the liberty of calling the attention of craniologists to this point. It appears to me that in future it will be right to adopt as a rule the practice of sending tables of measurements with casts. It will not be necessary to give in these tables all the measures. It will be sufficient to take the principal diameters and the longest curves. They will enable those who examine the casts to obtain afterwards proportional reductions of the exact value of the other measures.

There are seven measures on the table. 1. *The maximum antero-posterior diameter*, from the glabellar eminence to the most receding part of the *squama occipitis*. 2. *The maximum transverse diameter*, taken from the point which gives the greatest divarication between the compass-points. This point may be on the parietal, on the temporal, or on the lower or posterior angle of the parietal. 3. *The minimum frontal diameter*, taken at the lower part of the frontal bone, above the external orbital processes. 4. *The basilo-bregmatic diameter*, measured by placing one of the compass-points on the centre of the anterior border of the occipital foramen, and the other extremity on the bregma, i. e., on the median point of the coronal suture. 5. *The great median occipito-frontal curve*, measured from the root of the nose (naso-frontal suture) to the posterior border of the foramen magnum, passing by the bregma, the sagittal suture, and the external occipital protuberance. 6. *The maximum horizontal circumference*, representing the greatest capacity of the hat. 7. *The bi-auricular transverse circumference*, measured with the aid of a tape, which passes transversely under the *basis cranii* which passes next on each side opposite the *meatus auditorius externus*, and which then passes over the bregma.

I have thought it right, M. le Président, to submit to you these various explanations to assure you of the exactitude of the cranio-metrical observation which can be made on the casts I send to the Anthropological Society of London. The details into which I have entered have perhaps the fault of being too long and too minute.

Perhaps you will excuse this when you remember that the questions which I have suggested do not merely concern the present skulls, and will arise every time that exchanges of casts take place between our two societies or between any two museums.

Receive, M. le Président, the expression of my devoted and respectful sentiments.

(Signed) P. BROCA.

*Dimensions of six cranial casts sent by M. Broca to the Anthropological Society of London compared with the dimensions of the original skulls.*

The measurements are expressed in millimètres.	BASQUE CRANIA FROM Z—.						CRANIA FROM ORROUY.					
	No. 24.		No. 21.		No. 39.		No. 4.		No. 8.		No. 11.	
	Skull.	Cast.	Skull.	Cast.	Skull.	Cast.	Skull.	Cast.	Skull.	Cast.	Skull.	Cast.
Maximum antero-posterior diameter	183	186	191	193	187	189	168	170	184	186	170	172
Maximum transverse diameter . . .	153	155	142	144	137	138	134	136	150	151	145	146
Maximum frontal diameter . . .	101	103	95	96	94	96	90	91	88	89	98	99
Basilo-bregmatic diameter . . .	124	126	127	129	123	125	123	125	138	140	134	135
Great median occipito-frontal curve	369	374	376	382	370	375	346	350	380	384	358	362
Maximum horizontal circumference	539	545	527	535	527	533	487	491	533	539	500	507
Transverse bi-auricular circumference . . .	450	458	432	439	422	428	410	415	457	462	445	448
<i>Cephalic Index</i> : the antero-posterior diameter being 100, the transverse diameter = . .	83·60		74·34		73·26		79·76		81·52		85·29	

The PRESIDENT said he had heard the communication from Dr. Broca with much satisfaction. That gentleman was the heart and soul of the Anthropological Society of Paris; and he hailed the paper with great pleasure, coming from such a source. The Basque skulls of which he had sent casts to the Society, were collected by Dr. Broca with great difficulty, and at the risk of the life of his friends; and these were reasons why he did not wish the place from which they had been obtained to be known. He had also incurred considerable expense in forwarding the casts to the Society, and they would form a valuable addition to their museum. The President hoped the meeting would return their hearty thanks to Dr. Broca for his contributions, and he trusted they would not be the last they should receive from him.

The thanks of the meeting were then unanimously given to Dr. Broca.

Mr. C. CARTER BLAKE remarked on the casts contributed by Dr. Broca that they were of two kinds, indicating different characteristics. The Basque skulls shewed that that people, instead of having, as had been sometimes described, beetling brows, and being otherwise allied to the skulls of the stone period in Denmark, and with affinity to the Laps and Fins, comprised individuals who were not different in any important respects from the skulls of the ancient, and, indeed, of the existing Celts. It was important to observe that, while the Basques, as a people, differ greatly in language and other characters from other nations, their skulls do not differ from those of many other persons of France and Spain, and the skulls of which the casts were on the table might, indeed, have been derived from an English grave-yard. But the skulls from the bone cave of Orrouy were very different. They belonged to an analogous series of skulls to that which had been derived from the peat beds and river beds in various parts of England. Similar skulls had been found under fifteen feet of gravel at Eastham, near the river Lea; they had been found at Battersea, in the bed of the Thames, in Cornwall, and in other places. They all agreed in many well defined characters. The crania of these river-beds differ in some respects. Further investigations were yet required into the characteristics of these river-bed skulls, and the time had not yet come when their characters could be definitely laid before the Society. No satisfactory generalisation could yet be arrived at to determine whether they belonged to the stone, the bronze, or to the iron period.

Mr. HIGGINS asked Mr. Carter Blake whether he agreed in opinion that the skulls derived from this bone cave represent a family character, and whether the olecranal perforation had been ever observed in river-bed skeletons?

Mr. C. CARTER BLAKE, in reply, observed, that he feared there was a poor story to be told about the skeletons from the river-beds. In these instances there was nothing like the perforation of the olecranal fossa. He agreed that the same character was probably common to the people or family who had inhabited the cave and buried their relatives there. With respect to the perforation alluded to, he did not think it so rare as Dr. Broca appeared to do. In a publication by M. Hollard, about five years ago, many similar instances were noted, and many similar ones had been found by Mr. Blake himself. It had been thought that the perforation repeated a character that existed in the lower animals, but there was no tendency to perforation of the humerus in the animals most closely allied to man.

The following paper was then read:—